



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

MAY 27 2008

Ms. Terri Siemer-Aal  
Agent for Snowden Enterprises, Inc.  
1036 "G" Street  
Reedley, CA 93654

**Subject: Application for Amended Label for The Fruit Doctor  
EPA Reg. No. 11195-1  
Your Submission of February 27, 2008**

Dear Ms. Siemer-Aal:

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, to modify the product Application Manual according to my 2/4/08 email (attached), is acceptable, provided a final printed Master Label is submitted with the changes listed below within 45 days. For clarification, my 2/4/08 email refers to The Fruit Doctor label, although your cover letter of 2/27/08 refers to amending the Application Manual. In the Agency's view, the Application Manual is a part of The Fruit Doctor "Master Label", and the Agency has treated the submission as a request for a Master Label amendment.

Changes to Master Label:

1. Change "... Snowden Enterprises, Inc., system." to "... Snowden Enterprises, Inc." at the bottom of page 6, the bottom of page 7, and the top of page 8.
2. Configure the Master Label on file with the EPA as a cylinder label, a user label, and the Application Manual, consecutively paginated with the cylinder label as page 1, the user label as page 2, the first page of the Application Manual as page 3, and so on. Your printed label may paginate the Application Manual starting at page 1.

One copy of the Master Label stamped "Accepted with Comments" is enclosed for your records. Submit one copy of the final printed labeling the sooner of 45 days, or before you release the product for shipment. Contact Bob Tomerlin of my staff at 703-305-0598 ([tommerlin.bob@epa.gov](mailto:tommerlin.bob@epa.gov)), or me at 703-308-9443 ([kish.tony@epa.gov](mailto:kish.tony@epa.gov)) if you have any questions regarding this approval.

Sincerely,

A handwritten signature in black ink, appearing to read "Tony Kish", is written over the typed name.

Tony Kish  
Product Manager, Team 22  
Fungicide Branch  
Registration Division (7505P)

Enclosures: One label stamped "Accepted with Comments"  
Copy of Kish 2/4/08 email

2 8 12

# RESTRICTED USE PESTICIDE

Due to corrosive effects during inhalation and to eyes and skin.

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certifications.

## THE FRUIT DOCTOR

COMPRESSED SULFUR DIOXIDE

THIS PRODUCT IS ACCOMPANIED BY A COMPLETE LABEL AND APPLICATION MANUAL. READ AND UNDERSTAND THE ENTIRE LABELING (LABEL AND APPLICATION MANUAL) BEFORE USING THIS PRODUCT. CONTACT SNOWDEN ENTERPRISES, INC. TO OBTAIN A REPLACEMENT COPY OF THE APPLICATION MANUAL.

ACTIVE INGREDIENT: Sulfur Dioxide..... 100%

KEEP OUT OF REACH OF CHILDREN

DANGER



PELIGRO

POISON

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicado ampliamente.

HARMFUL IF SWALLOWED. DO NOT SWALLOW OR INHALE.

See Additional Precautions in the Application Manual.

### FIRST AID

<b>If inhaled</b>	- Move person to fresh air. - If person is not breathing, call 911 or an ambulance, then give artificial respiration, Preferably mouth-to-mouth, if possible. Trained personnel should administer oxygen as soon as possible. - Seek medical attention immediately. Call a poison control center or doctor for further treatment advice.
<b>If on skin or clothing</b>	- Immediately flush contaminated skin with copious amounts of running water for at least 15 minutes. Continue as required to control burning sensation. Remove contaminated clothing while in shower to ensure irrigation of all contaminated skin. - DO NOT apply any chemicals or ointments/lotions to damaged skin. - Seek medical attention immediately. Call a poison control center or doctor for treatment advice.
<b>If in eyes</b>	- DO NOT wear contact lenses when working with or around sulfur dioxide. - Hold eye open and rinse slowly and gently with water for 15-20 minutes. Completely flush all eye and lid tissue. - DO NOT apply any chemical or ointment to the eyes. - Seek medical attention immediately. Call a poison control center or doctor for treatment advice.
<b>If Swallowed</b>	- (LIQUID SULFUR DIOXIDE) - Call a poison control center or doctor immediately for treatment advice. - Have person sip a glass of water if able to swallow. - Do not induce vomiting. - Do not give anything by mouth to an unconscious person.
<b>NOTES:</b> • Have the product container or label with you when calling a poison control center or doctor, or going for treatment. • In the event of a medical emergency, you may also contact the National Pesticide Information Center (NPIC) at 1-800-858-7378.	
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

PRESSURIZED LIQUID GAS – HAZARDOUS VAPOR AND LIQUID –  
LIQUID CAUSES BURNS OF SKIN AND EYES.

Fatal if inhaled in high concentration. Do not breathe vapor. Persons with a history of respiratory problems should avoid exposure to the product. For handling activities in enclosed areas, use either a supplied-air respirator with NIOSH approval number prefix TC-19C, OR a self-contained breathing apparatus (SCBA) with NIOSH approval number TC-13F. Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Wear a full-face shield. Causes skin burns. Do not get in eyes, on skin, or on clothing. Wear long-sleeved shirt and long pants, and chemical resistant gloves and boots. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

EPA REG. No. 11195-1

EPA EST. No. 11195-CA-1 or 2

Manufactured for: Snowden Enterprises, Inc., P.O. Box 751, Fresno, California 93712

Net Contents:

(See Attached Tag for Pounds Sulfur Dioxide Net Contents)

ACCEPTED  
with COMMENTS  
in EPA Letter Dated

MAY 27 2008

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

11195-1



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**DANGER**

**PRESSURIZED LIQUID GAS  
HAZARDOUS VAPOR AND LIQUID - LIQUID CAUSES BURNS OF  
SKIN AND EYES.**

Fatal if inhaled in high concentration. Do not breathe vapor. Persons with a history of respiratory problems should avoid exposure to the product. For handling activities in enclosed areas, use either a supplied-air respirator with NIOSH approval number prefix TC-19C, OR a self-contained breathing apparatus (SCBA) with NIOSH approval number TC-13F. Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Wear a full-face shield. Causes skin burns. Do not get in eyes, on skin, or on clothing. Wear long-sleeved shirt and long pants, and chemical resistant gloves and boots. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

**ENVIRONMENTAL HAZARDS**

This product is toxic to fish and wildlife. Do not spill or empty into streams, ponds or any other body of water. Do not contaminate water or wetlands by cleaning of equipment, disposal of wastes, or direct application.

**PHYSICAL AND CHEMICAL HAZARDS**

Sulfur dioxide is a non-flammable, whitish colored gas of pungent odor. Corrosive in presence of water. Do not spray water on any leaking container. Water will make product corrosive and may increase venting. Sulfur dioxide can be sensed by taste at low level concentrations.

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage or disposal.

**Pesticide Storage:** Store in a locked, dry, level, well-ventilated area at normal room temperature. Post as a pesticide storage area. Do not store near flammable material near the inlet of a ventilating or air conditioning unit, near any source of direct heat or in a subsurface location. Store cylinders upright, secured to a rack wall to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal:** When cylinder is empty, close valve before returning to supplier. Only the registrant is authorized to refill cylinders. Do not use cylinders for any other purpose. Return empty cylinders freight prepaid to Snowden Enterprises, Inc., location from which shipment was made. Close cylinder valve by turning clockwise until hand tight. Disconnect lines. Return empty and/or partial cylinders only after consulting Snowden Enterprises, Inc., for proper shipping instructions.

**RESTRICTED USE PESTICIDE**

Due to corrosive effects during inhalation and to eyes and skin.  
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification.

**THE FRUIT DOCTOR**

**COMPRESSED SULFUR DIOXIDE**

ACTIVE INGREDIENT: Sulfur Dioxide..... 100%

**KEEP OUT OF REACH OF CHILDREN**



**DANGER**

**PELIGRO**

**POISON**

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicado ampliamente.

**HARMFUL IF SWALLOWED. DO NOT SWALLOW OR INHALE.**

See additional precautions in the accompanying application manual.

**FIRST AID**

<b>If inhaled</b>	<ul style="list-style-type: none"><li>- Move person to fresh air.</li><li>- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Trained personnel should administer oxygen as soon as possible.</li><li>- Seek medical attention immediately. Call a poison control center or doctor for further treatment advice.</li></ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"><li>- Immediately flush contaminated skin with copious amounts of running water for at least 15 minutes. Continue as required to control burning sensation. Remove contaminated clothing while in shower to ensure irrigation of all contaminated skin.</li><li>- DO NOT apply any chemicals or ointments/lotions to damaged skin.</li><li>- Seek medical attention immediately. Call a poison control center or doctor for treatment advice.</li></ul>
<b>If in eyes</b>	<ul style="list-style-type: none"><li>- DO NOT wear contact lenses when working with or around sulfur dioxide.</li><li>- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Completely flush all eye and lid tissue.</li><li>- DO NOT apply any chemical or ointment to the eyes.</li><li>- Seek medical attention immediately. Call a poison control center or doctor for treatment advice.</li></ul>
<b>If swallowed</b>	<ul style="list-style-type: none"><li>- (LIQUID SULFUR DIOXIDE)</li><li>- Call a poison control center or doctor immediately for treatment advice.</li><li>- Have person sip a glass of water if able to swallow.</li><li>- Do not induce vomiting.</li><li>- Do not give anything by mouth to an unconscious person.</li></ul>

**NOTES:**

- Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- In the event of a medical emergency, you may also contact the National Pesticide Information Center (NPIC) at 1-800-858-7378.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

EPA REG. NO. 11195-1

EPA EST. NO. 11195-CA-1 or 2

Net Contents: (See Attached Tag for Pounds Sulfur Dioxide Net Contents)

**DIRECTIONS FOR USE**

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

**SEE APPLICATION  
MANUAL DESCRIBING USE  
OF FRUIT DOCTOR SULFUR  
DIOXIDE - THIS PRODUCT IS  
ACCOMPANIED BY AN  
APPROVED APPLICATION  
MANUAL. READ AND  
UNDERSTAND THE ENTIRE  
LABELING (LABEL AND  
APPLICATION MANUAL)  
BEFORE USING THIS  
PRODUCT. CONTACT  
SNOWDEN ENTERPRISES,  
INC. TO OBTAIN A  
REPLACEMENT COPY OF  
THE APPLICATION  
MANUAL.**

**CONDITIONS OF SALE**

1. Snowden Enterprises, Inc. warrants that this product consists of the ingredients specified and is reasonably fit for the purpose stated on this label when used in accordance with the directions under normal conditions of use. No one other than an officer of Snowden is authorized (and such authorization must be in writing) to make any other warranty, guarantee or direction concerning this product.

2. Because the time, place, rate of application, weather conditions and normal or abnormal conditions of use or storage are beyond Snowden's control, to the extent consistent with applicable law, Snowden's liability is limited to replacement of product or refund of purchase price. In no event shall Snowden be liable for indirect or consequential damages.

Manufactured for:  
Snowden Enterprises, Inc.  
P.O. Box 751  
Fresno, California 93712

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4 8 12

**RESTRICTED USE PESTICIDE**

Due to corrosive effects during inhalation and to eyes and skin.

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification.

FRUIT  
DOCTOR  
LOGO

**THE FRUIT DOCTOR  
APPLICATION MANUAL**

(Must accompany label at point of sale.)

Read and understand the entire labeling (label and application manual)  
before using this product.

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS**

**DANGER – PELIGRO**



**POISON**

**PRESSURIZED LIQUID GAS  
KEEP OUT OF REACH OF CHILDREN**

Hazardous vapor and liquid – Liquid causes burns of skin and eyes.

Fatal if inhaled in high concentrations. Do not breathe vapor. Persons with a history of respiratory problems should avoid exposure to the product. For handling activities in enclosed areas, use either a supplied-air respirator with NIOSH approval number prefix TC-19C, OR a self-contained breathing apparatus (SCBA) with NIOSH approval number TC-13F. Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Wear a full-face shield. Causes skin burns. Do not get in eyes, on skin, or on clothing. Wear coveralls over long sleeved shirt and long pants, chemical resistant boots and chemical resistant gloves. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

Sulfur dioxide is an eye, nose, and throat irritant even at low levels. If tearing or upper respiratory tract irritation symptoms occur, leave fumigation area immediately.

Medical assessments of applicators and other persons who will be regularly exposed to sulfur dioxide should be conducted prior to employment and at 1 – 2 year intervals.

## FIRST AID

In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.

**IF INHALED:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Trained personnel should administer oxygen as soon as possible. Seek medical attention immediately.

**IF ON SKIN:** Immediately flush contaminated skin with copious amounts of running water for at least 15 minutes. Continue as required to control burning sensation. Remove clothes while in shower to ensure irrigation of all contaminated skin. DO NOT apply any chemicals or ointments/lotions to damaged skin. Seek medical attention immediately. Call a poison control center or doctor for treatment advice.

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Completely flush all eye and lid tissue. DO NOT apply any chemical or ointment to the eyes. DO NOT wear contact lenses when working with or around sulfur dioxide. Seek medical attention immediately. Call a poison control center or doctor for treatment advice.

**IF SWALLOWED: (LIQUID SULFUR DIOXIDE):** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting. Do not give anything by mouth to an unconscious person.

**NOTES:** Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In the event of a medical emergency, you may also contact the National Pesticide Information Center (NPIC) at 1-800-858-7378.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

This fumigant is a hazardous material and must be used only by individuals trained in its proper use. Before using, you must read and obey all label precautions and directions.

All persons working with this fumigant must be knowledgeable about the hazards, and trained in the use of required respirator equipment and detector devices, emergency procedures, and proper use of the fumigant.

When used for fumigation of enclosed spaces (e.g., warehouses, cold storage rooms, trucks, van, boxcars, and other transport vehicles), it is important to follow requirements

for applying Category I materials. It is Snowden Enterprises' recommendation that two persons trained in the use of this product be present at all times during introduction of the fumigant through the aeration period. It is recommended that any time SO<sub>2</sub> gassing is occurring, that the area be monitored for SO<sub>2</sub> levels at all times.

### PERSONAL PROTECTIVE EQUIPMENT

#### Protective Clothing

Wear long-sleeved shirt and long pants, gloves and boots when handling this product. Until braided hoses are in place and connections have all been checked, wear a full-face mask when making gas applications.

If using non-braided hosing, wear full-body protective clothing impervious to sulfur dioxide, and gloves and boots that are impervious to sulfur dioxide. Wear goggles and SO<sub>2</sub> NIOSH/MSHA approved respirator when making SO<sub>2</sub> gas applications. Contact lenses should not be worn.

#### Respiratory Protection

If the concentration of sulfur dioxide in the worker area, as measured by a pump and appropriate detector tubes, does not exceed 2.0 ppm, no respiratory protection is required. Examples of detectors are Draeger handpump and appropriate detector tube, Kitagawa or Sensidyne syringe type samplers with appropriate detector. The manufacturer's instructions provided with the measuring device should always be followed for the detector's correct use.

If the 2.0 ppm concentration is exceeded at any time, all persons working in the fumigation area must wear a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air supplied SCBA respirator. No one should enter a high SO<sub>2</sub> concentration area using a short-term full-face respirator because these only have a limited capacity for protection. It is not possible for someone working in a high SO<sub>2</sub> concentration area to know when the limit of a full-face respirator has been reached.

### POSTING OF FUMIGATION SITES

Before fumigation, the applicator must post markings at all entrances to the fumigated areas with signs bearing the following statements in English and Spanish:

1. The signal word DANGER/PELIGRO in 2" letters and the skull and crossbones symbol.
2. The statement, "Area under fumigation, DO NOT ENTER/NO ENTRE.
3. The date and time of fumigation.
4. Name of fumigant used.
5. Name, address, and telephone number of the applicator.



Any person who transfers a treated commodity to another site without aeration must ensure that the new site is posted until the air around the commodity is below the threshold concentration (2.0 ppm).

Remove posted marking sign(s) when the concentration of sulfur dioxide in the treated site is below 2.0 ppm as determined by use of a direct detection device.

#### RE-ENTRY AFTER FUMIGATION

After fumigation, treated areas must be undisturbed until the level of sulfur dioxide is at or below 2.0 ppm as determined by use of a direct detection device (such as Draeger hand pump and appropriate detector tube or Kitagawa or Sensidyne syringe detection device or an equivalent device). Do not allow entry into the treated area by any person before this time unless provided with a respiratory protection device (SCBA or combination air-supplied/SCBA respirator).

#### STORAGE AND DISPOSAL, SPILL AND LEAK PROCEDURES

Do not contaminate water, food, or feed by storage or disposal.

**Pesticide Storage** – Store in a secure location properly labeled for Category I pesticides. Store cylinders upright, secured to a rack or wall or placed in specially designed cases to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs, or similar devices to unload cylinders. Do not store near flammable material, near the inlet of a ventilating or air conditioning unit, near any source of direct heat, nor in a subsurface location. Before use, locate the bottle labeled for the room to be fumigated, which will show the room number and weight of SO<sub>2</sub> in the container, move this container to the room matched to the container for fumigation. Do not remove bonnet or safety cap protecting valve before use. Replace bonnet or safety cap when not in use.

**Pesticide Disposal** – Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal** - When cylinder is empty after use, close valve by turning to the right until tight, disconnect lines and replace protection bonnet before returning to supplier. Do not use cylinders for any other purpose. Only Snowden Enterprises, Inc. is authorized to refill cylinders. Return empty cylinders pre-paid to Snowden Enterprises, Inc.'s location from which shipment was made. Return empty and/or partial cylinders only after consulting Snowden Enterprises, Inc., for proper shipping instructions.

**Spill and Leak Procedures** – Evacuate immediate area of spill or leak. Use a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air

supplied/SCBA respirator for entry into affected area to correct problem. Move leaking or damaged cylinders outdoors or to an isolated location, observing strict safety precautions. Work upwind if possible. Allow spill to evaporate. Do not permit entry into spill area by unprotected persons until concentration of sulfur dioxide is determined to be less than 2.0 ppm as determined by use of a direct detection device.

### COMMODITY FUMIGATION DIRECTIONS

Follow all safety procedures specified on the label and in this Application Manual.

This product may be applied to the commodity in enclosed stationary spaces (fumigation, pre-cooling, or cold storage rooms). Applications may be made to the commodity in the following transport vehicles: trucks, vans, trailers, and railcars.

Do not apply/aerate in a manner to allow drift onto areas occupied by unprotected humans or beneficial animals. Do not release fumigant into occupied work area.

Do not apply so that liquid sulfur dioxide will come in contact with the fruit. Liquid sulfur dioxide on the fruit will cause bleaching of grapes. Enough fans should be operating in the fumigation space to volatilize all of the liquid sulfur dioxide and provide a uniform concentration throughout the room. It is recommended that an air volume of at least 0.5 times the volume of the fumigated space should be moved by the operating fans during each minute of gassing.

For the application, load the commodity to be fumigated into the treatment space. The lug boxes should be oriented such that the openings in each box are aligned with openings in the other boxes to promote airflow through the fruit in the boxes. Pallets of fruit should be stacked to promote airflow between them. Turn on circulating fans, close all vents, exhaust ports, and vents into the space. Vaporize the liquid sulfur dioxide by releasing the liquid  $\text{SO}_2$  into the house hose system used for  $\text{SO}_2$ . The hoses should be ducted into open spaces where air movement is unrestricted. If spraying in front of blower or fan equipment, be sure none is splashed onto the equipment or severe corrosion will result.

### GRAPES

For post-harvest use only on grapes held in cold storage. To suppress spread of grey mold disease caused by *Botrytis cinerea*. The warehouse operator should work to minimize conditions that promote grey mold such as bruised or crushed berries, excess bunch shatter, etc.

### WAREHOUSE FUMIGATION AND STORAGE

**APPLICATION TIMING:**  $\text{SO}_2$  fumigation should occur as soon after harvest as is practical. For fruit to be stored for extended periods, initial gassing should occur on the day of harvest and follow on a 7-10 day interval. For fruit being shipped to market soon



after harvest, SO<sub>2</sub> fumigation should be done before shipment, or in transit, if fruit has been gassed three (3) or fewer times. For fruit gassed in the warehouse more than three times, 12 or more hours should be allowed to elapse before shipment.

Seeded varieties may be fumigated on a 7-10 day interval up to 20 times. Most seedless varieties may be fumigated on a 7-10 day interval up to 15 times, but the Thompson Seedless variety should not be fumigated more than 12 times.

**RATE OF APPLICATION:** It is not a use inconsistent with this label to use less than recommended amounts, but it should be realized that using less than the stated rates may reduce efficacy.

**INITIAL FUMIGATION:** Use  $\frac{3}{4}$  to 1% gas concentration based on measured volume of the cold storage room or fumigation chamber.

**MAINTENANCE FUMIGATION:** Use  $\frac{1}{4}$  to  $\frac{1}{2}$ % gas concentration based on measured volume of the cold storage room or fumigation chamber.

**TREATMENT TIME:** Gas treatment should last for 20-30 minutes starting when gas is initially introduced into the room. Fumigation should be terminated by venting the room or scrubbing the recirculated air. It is essential that venting be started at or before 30 minutes after gassing initiation or excess residue may result. When venting is initiated, vigorous air movement is required to either exhaust the SO<sub>2</sub> through a vent or vents on the roof, or through a water scrubber. Venting or scrubbing must draw all SO<sub>2</sub> saturated air from the spaces between the berries within the following 20-30 minutes. This requires complete air movement and air replacement in the room at the rate of at least 0.1 to 0.3 of the cubic volume of the room per minute for a duration of 20-30 minutes. Measurement of exhaust fan capacity should be periodically checked to maintain this or a greater air movement efficiency. If a water scrubber system is used, it is essential that sufficient scrubbing surface is available to remove the SO<sub>2</sub> from the recirculating air to equal the rate of removal by direct venting.

**APPLICATION – COLD STORAGE ROOM OR FUMIGATION CHAMBER:**

Obtain from Snowden Enterprises, Inc., or a designated distributor a pre-weighed filled cylinder that has been filled for a predesignated measured room (the filling weight is based on the room size).

Connect the bottle to a gassing system that has been previously evaluated and accepted by the chemical manufacturer for the designated room. When everything is ready for fumigation, open the valve and leave it open until the cylinder is empty. Close the valve and uncouple the cylinder from the system. Return the cylinder to Snowden Enterprises, Inc., system.

## HIGH FREQUENCY – LOW DOSAGE TREATMENT - WAREHOUSE

**APPLICATION TIMING:** SO<sub>2</sub> fumigation should occur as soon after harvest as is practical. For fruit to be stored for extended periods, initial gassing should occur on the day of harvest and follow at a three times per week interval (2 days, 2 days, 3 days). Seedless and seeded varieties may be fumigated on this high frequency, low dosage basis as long as they are in storage.

**INITIAL FUMIGATION:** Use  $\frac{3}{4}$  to 1% gas concentration based on the measured volume of the cold storage room.

**MAINTENANCE FUMIGATION:** Use 200 to 400 ppm gas concentration based on the measured volume of the cold storage room.

**TREATMENT TIME:** Gas treatment will last until the room concentration is determined by measurement to be below 2.0 ppm. Vigorous air movement is required during gassing and for approximately 30 minutes following gas introduction. No venting is required with this procedure.

**APPLICATION COLD STORAGE ROOM:** Obtain from Snowden Enterprises, Inc., or a designated distributor a pre-weighed, filled cylinder that has been filled for a predesignated measured room (the filling weight is based on the room size). Connect the cylinder to a previously validated gassing system installed in a designated room. When everything is ready for fumigation, open the valve and leave it open until the cylinder is empty. Close the valve and uncouple the cylinder from the system. Return the cylinder to Snowden Enterprises, Inc.

**IN-HOUSE FOLLOW-UP PROCEDURE:** If you use this method, it is a requirement of this gassing method to examine your fruit for mold growth for the duration of cold storage. Fruit examination should occur at least once weekly.

## TRUCK FUMIGATION

Pre-install hose kit in the truck trailer through the drain line at the end of the trailer and under the pallets supporting the fruit. Close the trailer doors, connect the pre-weighed container to the hose end. Turn the cylinder upside down and open the valve; leave in this position 1-2 minutes or until empty. Close valve, disconnect cylinder from the hose, remove hose from drain and return to container case for return to Snowden Enterprises, Inc., system. See directions on container case for additional directions for installing truck fumigation kit. Trailers fumigated with SO<sub>2</sub> must be held for 24 hours before releasing for shipment. Trucks and/or trailers must be properly aerated before moving over public roads or highways.



## RAILCAR FUMIGATION

Pre-install hose kit in the railcar under the pallets supporting the fruit. Close the doors, connect the pre-weighed container to the hose end. Turn the cylinder upside down and open the valve; leave in this position 1-2 minutes or until empty. Close valve, disconnect cylinder from the kit hose, and return cylinder to container case for return to Snowden Enterprises, Inc., system.

FOR USE IN CLEANING BARRELS USED IN WINE PRODUCTION – Fumigate barrels to minimize effects of non-public health fungi and/or bacteria prior to the introduction of grape juice for wine production.

For wooden barrels used for wine aging:

1. Inside of barrels should be rinsed by a solvent selected by the winery (e.g. soap, water, etc.) and air dried.
2. Gas barrels - Using Gas Cylinder only (no eduction tube) and a barrel gassing unit with a pressure gauge provided by Snowden Enterprises. Pressure in the cylinder should be between 18-45 psi. Begin treatment by removing bung from barrel, insert SO<sub>2</sub> probe into the barrel and open the valve for 2-3 seconds. Now close the valve, extract the SO<sub>2</sub> probe and replace bung. Insert the SO<sub>2</sub> probe into the next barrel following the same procedure until all barrels are treated OR the pressure in the cylinder falls below 18 psi. If the cylinder pressure falls below 18 psi, change to another Gas Cylinder and continue gassing process as described.

NOTE TO USER: If a liquid SO<sub>2</sub> cylinder (with eduction tube) is used, the barrel will be damaged.

The SO<sub>2</sub> cylinders have fusible plugs (heat sensitive plugs) rated at 165°F. Do not expose cylinders to a heat source, including hot water. Doing so may rapidly release all of the SO<sub>2</sub> from the tank. If this happens, the work area should be evacuated until the air in the work area is shown to contain 2 ppm or less SO<sub>2</sub> or proper breathing apparatus is used.

After treatment, set cleaned barrels aside for 1-30 days. If barrels were gassed more than 30 days previously, they need to be re-gassed. When the barrels are being gassed, Draeger tube, or similar device readings must occasionally be made during gassing process to assure that the SO<sub>2</sub> concentration in the gassing or work area does not exceed 2 ppm. If the work area readings are above 2 ppm, workers in the area must use NIOSH approved fitted face respirators for a short time or leave the work area until the atmosphere is shown to be at or below 2 ppm by an SO<sub>2</sub> detection device.

## FUMIGATING CORKS USED IN WINE PRODUCTION

For corks used in wine production: Fumigate the cork to reduce effects of non-public health fungal or bacterial growth prior to corking bottles to minimize contamination of the wine in the bottle.

To fumigate cork bags, use a Gas Cylinder only (no eduction tube) and cork bag gassing unit equipped with or without a vacuum sealer. The Gas Cylinder and pressure gauge are provided by Snowden Enterprises or a designated distributor. Pressure in the cylinder should be between 18-45 psi. Begin treatment by placing a plastic bag into the cork loading equipment, fill the bag with corks, begin the heat sealing process, introduce SO<sub>2</sub> gas for 2-3 seconds, and complete the heat sealing process. If the cylinder pressure falls below 18 psi, change to another Gas Cylinder and continue the gassing process. Fumigated corks may be used the day following SO<sub>2</sub> gassing. Any bags thus treated must be labeled as "SO<sub>2</sub> treated".

Snowden/SO<sub>2</sub>label/ 9-07